Distr.: General
12 May 1999
Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the national paper of Denmark

I. Main objective of Danish space policy

1. The main objective of Danish space policy is to participate in European space cooperation, to build up new know-how in the area and to contribute to the establishment of relevant space-based systems that will benefit Danish society. In addition, Danish space policy should contribute to the continued strength, competitiveness and commercial impact of the Danish space industry, a position the industry has achieved through product specialization.

2. The objectives of the individual areas are as follows:

(a) *Space research*

(i) To obtain a prominent international position in chosen areas of research;

(ii) To strengthen the position of Danish research centres, groups at universities and other research and development and educational institutions;

(iii) To integrate space research into Danish national research policy;

(iv) To ensure a connection between present focus areas, for example, Earth observation/remote sensing, astrophysics/astronomy, solar system physics, space medicine and biology (microgravity) and other relevant research efforts at the national and international levels;

(b) *The application of space technology*

(i) To focus more on the benefits of various space activities in connection with prioritizing Danish programmes and participation in European Space Agency (ESA) programmes;

(ii) To increase the benefits, more emphasis should be placed on the immediate use of new applications of space technology;

(iii) To promote the application and technological developments in the space sector, public grants should be allocated primarily during phases prior to the commercial use of such services and prior to the sale of such technology on the open market;

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(c) *Industrial development*. The competitiveness of the Danish space industry should be strengthened by the following means:

(i) Continued participation in ESA programmes and its research and development programmes;

(ii) Closer coordination and cooperation between product development and research and development.

(iii) Participation in national space projects in order to stimulate innovative thinking and achieve synergy, also within areas that are not directly related to space activities;

(iv) Participation in the open marketplace, to create synergy between ESA activities and other national space activities;

(d) *Education and information*

(i) Increased emphasis on the education of scientists for the space sector;

(ii) Increased emphasis on strengthening space-related research and educational programmes at universities, institutes and so on;

(iii) Increased emphasis on strengthening the cooperation between space research, education, trade and industry;

(iv) Increased focus on national information activities to increase the understanding, visibility and market impact of space activities.

3. To achieve these objectives, Denmark should play an active role in international and national developments. Internationally, this should be achieved as follows:

(a) By influencing the means and objectives of ESA's scientific programme;

(b) By Danish participation in voluntary ESA programmes, with emphasis on activities that relate to the present and future needs of Danish society;

(c) By participating in other international space activities, including cooperation with the Russian Federation and the United States of America.

4. Nationally, this should be done by focusing on the prioritized areas described below.

II. Prioritizing focus areas

5. Danish resources for space research and industrial activities are limited. To achieve optimal results, it is therefore important to prioritize selected focus areas in accordance with the objectives.

6. An important aspect in prioritizing these areas will be to include projects and programme areas that meet more than one objective at the same time. On the national level, the Orsted satellite and the related research programme is a good example of such a project. Prioritizing focus areas must also be carefully coordinated with previous Danish decisions and applications in relation to the mandatory ESA scientific programme and other voluntary programmes. Seen in relation to the total annual appropriations for ESA programmes and other national programmes, the financial leeway for full implementation of a revised space policy—with respect to previous commitments to such programmes—is relatively limited, at least in the short term. Thus, opportunities for acquiring further resources for the sector should

be looked into, with reference to achievements in focus areas that have been previously prioritized.

7. The Research Advisory Board for Space has chosen Earth observation and small satellites as new primary focus areas. The remaining focus areas are the existing ones, namely, astrophysics/astronomy, solar system physics, space medicine and biology (microgravity). Earth observation has been chosen as a focus area because of the opportunities, for example, in the fields of climate and the environment. Research into climatic and other environmental conditions on Earth could become an important Danish contribution to an increased understanding of possible changes in global weather and climate (global change). Small satellites have also been chosen as a focus area because a Danish small satellite programme based on experience from the Orsted project could well become a key factor in Danish high-tech efforts both within space research and for future uses of space.

8. All the focus areas mentioned are well-founded and relevant, but are aimed to ensure the greatest possible Danish influence in ESA and in other areas, namely, Earth observation and small satellites, the primary focal points. The new, revised space policy must also emphasize cooperation and contact with the educational institutions. At the same time, the dissemination of information concerning space activities should be increased.

9. Parallel to national participation in these focus areas, Denmark's considerable efforts in telecommunications and other technological programmes will continue. Such activities, which are of great importance to Danish industry, will be governed to a very large extent by the demands of the marketplace.